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CERCLA Site Inspection Prioritization Report



Illinois Environmental Protection Agency

2200 Churchill Road P. O. Box 19276 Springfield, IL 62794-9276

EPA Region 5 Records Ctr.



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SITE INSPECTION PRIORITIZATION REPORT BROWNING FERRIS INDUSTRIES

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1. SITE BACKGROUND

1.1 INTRODUCTION

On September 30, 1994 the Illinois Environmental Protection Agency's CERCLA Site Assessment Program was tasked by the U.S. Environmental Protection Agency (USEPA) to conduct a Site Inspection Prioritization (SIP) of the Browning Ferris Industries (BFI) Site.

This investigation was undertaken by the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 40 CFR, 1980 as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986.

Browning Ferris Industries was initially placed on the Comprehensive Environmental Response Compensation and Liability Inventory System (CERCLIS) in response to the State of Illinois concerns that past site activities may have caused groundwater contamination of the surrounding community.

In July of 1995 the Illinois EPA's CERCLA Site Assessment Unit prepared a Site Inspection Prioritization Work Plan for Browning Ferris Industries which was submitted to USEPA Region V offices for review. A site safety plan was also prepared at this time and after being reviewed by the Illinois EPA's Office of Chemical Safety, the field activity portion of the inspection occurred on August 9 and 10, 1995. The CERCLA Inspection included the collection of one shallow soil sample, four groundwater samples, and one residential drinking water well sample.

1.2 SITE DESCRIPTION

The BFI site, also known as Sand Park, is located in Loves Park, Illinois. BFI is an inactive landfill approximately 40 acres in size, located south of Riverside Boulevard near the intersection with Heart Boulevard (north 1\2 of the southeast 1\4 of section 6, Township 44 North, Range 2 East.). The property is currently owned by the Rockford Park District which operates it as a city park. A public swimming pool is located in the middle portion of the site, along Riverside Boulevard. The northeast and eastern portion of the site holds a miniature golf course and a golf driving range.

The property under investigation is basically flat on the western portion. A large hill approximately 40 feet above the surrounding topography was located on the eastern portion of the property. This hill which consisted of landfilled waste is currently used as a driving range for golf balls.

The site is vegetated and maintained by the Rockford Park District. A chain-link fence exists on the south-southeast corner. The remaining property boundaries are unfenced and open to the public. Certain areas of the property have undergone settling due to insufficient compaction of landfilled materials during the site's operational history. One area of observed settling was the asphalt parking lot near the swimming pool. The parking lot has settled as much as 2 to 3 feet resulting in an uneven ground surface subject to surface water ponding.

Single family residential homes border the site on the northwest and west. Loves Park City Hall and an unoccupied

warehouse, formerly known as National Can Company, are south of the site. Chicago and Northwestern Railroad tracks were located east of the site and Riverside Boulevard on the north. The area to the north, east and southeast is highly industrial and commercial.

1.3 SITE HISTORY

The Sand Park property was incorporated in a sand and gravel quarry operation in the 1930's and early 1940's. The depth of the quarry was believed to be approximately 40 feet (Illinois EPA Division of Land Files). In 1941 Rockford Park District purchased the property for use as a city park. Although prior to the construction of the park, the city of Loves Park and Rockford Park District agreed to use the gravel pit as a municipal landfill. Municipal wastes were accepted from Loves Park, Pectonia, Durand, North Park, and Harlem Township. Landfill operations began sometime in the 1950's. Operators of the landfill include B and H Disposal in the 1950's and 1960's, Rockford Disposal starting in 1966 and Browning Ferris Industries purchased Rockford Disposal in 1969.

The western portion of the property is believed to have been filled first and therefore would be the oldest portion. Records of the materials deposited within the municipal landfill were not kept because there were no regulatory agencies in existence which required operators to do so. Hazardous wastes are most likely deposited in the landfill since there was no enforcement during the early years of operation. Spent solvents and plating wastes make up a large portion of the Rockford areas hazardous waste quantity.

According to IEPA records complaints of odors, burning debris, leachate from the landfill hill, and rodent complaints were made throughout the historical operation of this facility.

1.4 REGULATORY STATUS

According to IEPA files the eastern portion of the site, where the BFI hill was located, has been covered with a 2 foot soil layer and closed. The western portion of the property has not been covered with a 2 foot soil cover. The entire site does not have an IEPA approved soil cover although it is considered closed.

Beginning in 1982, IEPA detected Volatile Organic Compounds (VOA's) in Loves Park Municipal Well #2. Monitoring wells were installed and sampled by the IEPA in 1983, down-gradient of the landfill. VOC's and inorganic contaminants were detected in the onsite monitoring wells during a Screening Site Inspection (SSI) conducted by Ecology and Environment in 1984. The SSI was conducted under CERCLA authority and the site was given a high priority. In October of 1989 IEPA placed the BFI site on the State Remedial Action Priorities List ("SRAPL"). Consequently due to a lack of sufficient state funding, it was recommended that this site advance in the CERCLA investigative process and an SIP inspection was conducted.

Given the years of operation and the federal and state environmental regulations which existed during this time, the site does not fall under the jurisdiction of the Resource Conservation Recovery Act (RCRA), Atomic Energy Act (AEA), Toxic Substances Control Act (TSCA), Federal Insecticide, Fungicide, and Rodenticide

Act (FIFRA), or the Uranium Mill Tailings Radiation Control Act (UMTRCA).

2. SIP ACTIVITIES

This section contains information gathered during the preparation of the formal CERCLA Inspection and previous IEPA activities involving this site. These activities included the reviewing of Illinois EPA records, preparation of the work plan, and on-site interviews with Rockford Park District personnel and the mayor of Loves Park.

2.1 RECONNAISSANCE ACTIVITIES

On May 25, 1995 Mr. Brad Taylor and Ms. Michelle Tebrugge of the Illinois EPA met Mr. Tom Calusic, a representative of the Rockford Park District. The site reconnaissance included a visual inspection of the property to determine the locations of site waste management and containment measures. Mr. Calusic commented that records were not kept pertaining to the contents of landfill wastes and past landfill operations. Potential sampling locations from the property and private groundwater well users located near the landfill identified during were this pre-sampling reconnaissance. Surrounding land uses include residential to the west of BFI, residential and industrial to the north, commercial and industrial to the south and southeast.

Prior to making the site reconnaissance, Brad Taylor contacted

Tom Calusic with the Rockford Park District. Phone conversations

were conducted to gather site information from past operational activities, and explain the CERCLA SIP process in addition to past CERCLA activities. Rockford Park District representatives were given the opportunity to split samples with IEPA during the field sampling event and declined to do so.

2.2 SAMPLING ACTIVITIES

IEPA personnel collected environmental samples on August 9 and 10, 1995. Four subsurface groundwater samples were collected with the aid of a Geoprobe unit and one private groundwater well located NON-RESPONSIVE, WELL LOCATIONS was sampled. Groundwater samples were collected to potentially determine whether the BFI Landfill is impacting local groundwater. One shallow soil sample was collected from the landfill property. The purpose of collecting this sample was to help determine if the BFI property exceeded soil exposure levels established by USEPA due to residential areas nearby and the high amount of recreational use this site receives.

2.3 SAMPLING RESULTS

One shallow soil sample was collected during the field inspection. Semi-volatile and inorganic constituents were found in this shallow soil sample which exceeded soil exposure level benchmarks listed in the Superfund Chemical Data Matrix (SCDM).

Groundwater was collected from three separate locations along the northern perimeter of the landfill property using a Geoprobe unit. The Geoprobe sample location south of the BFI property was collected on the City of Loves Park property. This sample, G101, was selected to show potential background groundwater conditions prior to landfill operations. Volatiles and inorganic constituents were detected which exceeded the Maximum Contaminant Level for drinking water listed in SCDM.

NON-RESPONSIVE WELL LOCATIONS

One private well,
of the landfill was sampled during the SIP inspection. Contaminants
detected in the private groundwater well include one semi-volatile
constituent which exceeds the SCDM benchmark listed for drinking
water. The only contaminant which could potentially be attributed
to the site is Barium, although this level is below the Maximum
Contaminant Level (MCL) established by USEPA.

3.0 SITE SOURCES

3.1 LANDFILL

The area of the BFI property was calculated from an aerial photograph using a planix 5 measuring device. The outer boundaries of the landfill property were calculated to be approximately 1,774,400 square feet which is equivalent to 40.73 acres. Materials deposited within the landfill are unknown although the presence of hazardous materials cannot be ruled out because of a large amount of industry in the area and a lack of records. One shallow soil sample (X103) was collected from the BFI property which contained a number of semi-volatiles and inorganic materials. A background sample was not collected, therefore contaminant concentrations were compared to benchmarks listed in SCDM. See Table 2.0 for a summary

of the analytical results from this sample.

MIGRATION PATHWAYS

4.1 GROUNDWATER PATHWAY

Local geology in the Loves Park area is the result of Wisconsin age glacial advances estimated to move across Winnebago County approximately 75,000 years ago. Glacial activity deposited sand and gravel materials over pre-glacial bedrock which consisted of Cambrian age dolomite and sandstones. These sand and gravel layers are varying in depth, which is dependent on the surface topography of the pre-glacial bedrock. Loves Park Municipal Well #2 . According N-RESPONSIVE, WELL LOCATIONS to the well driller's log, sand and gravel extended to a depth of approximately 200 feet. A clay layer exists within the sand and gravel approximately 40 feet below ground surface and measured approximately 20 feet thick. Boring logs from private and municipal wells within a three mile radius of the BFI landfill were reviewed and found this clay layer did not exist in all borings (Ecology and Environment, 1986). Therefore the clay appears to be discontinuous.

According to a report generated in 1992 by the Illinois Department of Public Health there were approximately 130 wells that lie between the Rock River and the western boundary of the site. Private drinking water wells were located during the site reconnaissance, by IEPA personnel, based on a listing compiled by the Sanitary District of Rockford. The closest private drinking

water well being used was found approximately NON-RESPONSIVE, WELL LOCATIONS of the landfill. This well has the potential of being exposed to contaminants attributed to the landfill since groundwater flow has been predetermined to travel northwest. Loves Park Municipal Well #2 is currently closed and considered a standby well to be used in emergency cases when well #1 does not produce a sufficient amount of water. Municipal Well #1 is located approximately

. Municipal Wells #1 and 2 are approximately 200 feet deep and are screened within a sand and gravel layer (Illinois State Water Survey). The sand and gravel layer is the primary aquifer of concern for private and municipal drinking water wells.

Groundwater samples collected during the CERCLA investigation revealed volatiles and inorganic contaminants. Vinyl chloride, benzene, and cadmium exceeded the Maximum Contaminant Level (MCL) benchmark listed in SCDM for drinking water. See Table 2.0 for a summary of the analytical results. These groundwater samples were collected from the top of the aquifer of concern at approximately 8-22 feet deep. Contaminants collected from previous sampling events include chlorobenzene, benzene, naphthalene, Bis(2 ethylhexyl phthalate), toluene, ethylbenzene, xylene, dichlorobenzene, pentachlorophenol, mercury, arsenic and chromium. These contaminants were detected in the monitoring wells on-site which range in depth from 20 to 60 feet.

Loves Park Well #2 was sampled and 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1-dichloroethane were found above the MCL listed in SCDM. Solvents found in the Municipal Well #2 and the monitoring wells on-site appeared in wells at 20 feet and deeper. These solvents tend to sink once in the groundwater and therefore should be detected at higher concentrations with increasing depth. The potential exists for these solvents to be concentrated near the clay layer which was previously mentioned to be located approximately 40 feet below the ground surface.

4.2 SURFACE WATER PATHWAY

There were no surface water or sediment samples collected during this SIP inspection. The closest perennial water body was an unnamed stream located approximately 1000 feet north of the landfill which drained toward the southwest into the Rock River. The Rock River was located approximately 1.05 miles directly west of the landfill's western most boundary. During the CERCLA reconnaissance visit no visual surface water drainage routes were identified to leave the property.

4.3 SOIL EXPOSURE PATHWAY

The soil on-site generally consists of urban land made of moderately fine textured to coarsely textured silty loam. According to the Winnebago County Soil Survey, soil conditions on the BFI property are a result of cut and fill operations which restricts soil classification.

As mentioned previously the site receives heavy recreational use with no site access restrictions noted. The public swimming

pool and the golf driving range receive a large amount of public use during the spring and summer months. Workers routinely maintain the grass on the property and the golf driving range. Within 200 feet of the landfill property there were no schools or day care facilities observed during the site reconnaissance. However, there were workers observed on-site during the site reconnaissance and the field sampling event. To the west and northwest of the site is a heavily populated residential area.

Only one soil sample was collected on-site during this SIP inspection. The results are listed in Table 2.0. Since a background was not collected, these results were compared to health based benchmarks listed in SCDM. The contaminants which exceeded SCDM soil exposure benchmark for cancer risk were benzo(a) pyrene and arsenic as illustrated in the table below.

	Benzo (a) pyrene	Arsenic
Sample X103	600 ppb	3.3 ppm
SCDM Benchmark	80 ppb	0.33 ppm

4.4 AIR PATHWAY

No air samples were collected, nor were any air releases observed during the field inspection. The potential does exist for contaminants to be carried away from the site due to contaminants found in surficial materials on-site. On-site soils were well

vegetated except for small scattered areas on the southeast corner of the property which was void of any vegetation. The likelihood that materials could be carried to neighboring properties via air dispersion is low due to the vegetated soil covering.

The population of Loves Park consisted of approximately 15,149 people and the population within 1 mile of the site is approximately 25,380 people. No shallow residential soils were collected during this SIP inspection.

TABLE 1.0
SAMPLE DESCRIPTIONS

SAMPL	DEPTH	APPEARANCE	LOCATION
X103	1-3"	Dark brown sandy loam with some gravel present.	Soil taken 50 feet south of the southwest corner of the BFI landfilt slope and approximately 300 feet north of the National
		TVA Reading: PID 16 8ppm FID 3.7ppm Background PID 0.5ppm FID 2.8ppm	Can Company's northwest corner of the building.
G101	8 feet	Alot of sand was encountered	NON-RESPONSIVE, WELL LOCATION
		TVA Reading: PID 0.6ppm FID 1.0com	
		Background PID 0.37ppm FID 1 0ppm	
G102	13 feet	No TVA readings above beckground.	NON-RESPONSIVE, WELL LOCATIONS
G103	20-23 feet	TVA Reading: FID 2.37ppm Background FID 0.94ppm	NON-RESPONSIVE, WELL LOCATIONS
G104	20-22 feet	TVA Reading below backgrou concentrations.	Geoprobe location 63 feet south of Riverside Blvd. and 46 feet west of Rockford Park District sign.
G201	Not Applicable	Clear. No Odor.	Location of the outside apigot was on the north side of the residence.

SITE NAME: BROWNING FERRIS INDUSTRIES

ILD 980606693

TABLE 2.0 SAMPLE SUMMARY

SAMPLING POINT	G101 (ugV)	G102 (ugV)	G103 (ugV)	G104 (ugV)	Field Blank (ug\l)	G201 (ug\)	DUP. OF G201	FIELD BLAN (ugV)	TRIP BLANK ((ug\f)	X103 (mg/kg)
PARAMETER							(ugV)			(*****
VOLATILES										
Vinyl Chloride Chloroethane	_	=	5.0 J	28.0 7.0 J	[]		<u> </u>	-	-	_
Methylene Chloride	1 =	10.0 J] _ 5.0 3	_ ′.0 3	2.0 J	1 -	1 =	1.0	2.0 J	35.0 B
Acetone	-	24.0	18.0	35.0		_		3.0 J		12.0
Carbon Disulfide	1.0 J		3.0 J	2.0 J		_	l -		-	-
1,2-Dichloroethene(total)		j	_	54.0	_	_	-	-	l - 1	_
Benzene	} -	-	5.0 J	4.0 J	} _	l –	1 -	} ~	} - }	-
4-Methyl-2-Pentanone	l –	-	-	6.0 J] -	-	-	-	! - !	-
Toluene	-	-	1.0 J	2.0 J	-	- ',	-	-	-	
SEMIVOLATILES	}						٠,			
1,4-Dichlorobenzene	i _	-	_	1.0 J	! _	1 -	_	_	l	-
4-Methylphenol] _	-	-	_	-	-	 '-	i -	l – I	30.0 J
2,4-Dimethylphenol	-	-	i –	11.0	l -	 	1 -	-	l I	36.0 J
Naphthalene	-	-	-	2.0 J	0.5 J	-	-	-	! - !	-
2-Methylnaphthalene	-	-	-	2.0 J) –	i -	-	-	1 - 1	43.0 J
Acenaphthylene	-	-	-	-) -	j -	-	– .	ļ -	91.0 J
Dibenzofuran	j -	-	-	-	-	-	-	-	1 - 1	140.0 J
Diethylphthalata	-	-	1 -	0.5 J	-	-	-	-	1 - 1	4400.0
Phenanthrene	-] -	_	-	-	-	- .	_	-	1400.0 350.0 J
Anthracene	-	-	_	-	1 -	j -	-	-	-	75.0 J
Carbazole Fluoranthene	1 -	-] -	, -	_	-	_	1 -	1 - }	1500.0
Pyrane	-	-		-	_	-	l =	1 -	l·	1600.0
Penzo(a)anthracene	1 -	-	ł I	=			1 -		1 []	980.0
Chrysens	1 [1 I	1 _	_	1 _	- I I -	1 _		1 - 1	870.0
bis(2-Ethylhexyl)phthelate	1.0 J	0.6 J	_	0.5 J	2.0 J	32.0 B	10.0 J	2.0 JE		<u>-</u>
Benzo(b)fluoranthene			_				_		1 - 1	460.0
Benzo(k)fluoranthene	-	! -	_	-	1 -	-	-	-	1 - 1	600.0
Benzo(a)pyrene	1 -	l -	l -		1 -	_	-	-	1 - 1	600.0
Indeno(1,2,3-cd)pyrene] _] -]	J	 	_	-	1 - 1	320.0 J
Dibenz(a,h)anthracene	-	-	_	l –	- ~	-	-	1 -] -	130.0 J
Benzo(g,h,i)perylene	I _	l	l -	i _	1	l _	1 _	I _	1 _ 1	280.0 J

SITE NAME: BROWNING FERRIS INDUSTRIES ILD 980606693										
			TABLE 2.0							
		İ		SAMP	LE SUM	MARY	CONTI	NUED		
SAMPLING POINT	G101 (ugV)	G102 (ug\l)	G103 (ug\l)	G104 (ugV)	Field Blank (ugV)	G201 (ug\l)	DUP. OF G201	FIELD BLAN (ugV)	TRIP BLANK (ugV)	X103 (mg\kg)
PARAMETER							(ug\l)			
INORGANICS										
Aluminum	570.0	45.3	847.0	74.3	31.6	_	_	_	_	6610.0
Antimony	2.9	_	-	_		-	_	_	l - i	
Arsenic	3.6	2.6	9.0	16.0	→	-	_	_	-	3.3
Barium	633.0	85.3	928.0	300.0	-	66.0	67.0	1 -	· -	72.2
Beryflium	1 -	-	-	 -	-	-	_	_		0.3
Cadmium	6.4	1 -	-	-	! -	-	-		-	
Calcium	73600.0	94100.0	119000.0	93700.0	240.0 H	98000.0	98000.0	-	-	23200.0
Chromium	6.3	-	31.9	2.4	-	-	_	-	-	8.5
Cobalt	4.6	i -	3.1	4.6	-	-	_	-	_	3.6
Copper	14.6	2.0	35.8	3.4	1.3	-	74.0		-	9.8
Iron	3350.0	5180.0	16700.0	25100.0	25.7	-		_	-	7460.0
Lead	1.9		2.6			3.0	6.0	3.0	-	61.6
Magnesium	37300.0	33600.0	45700.0	39000.0	29.2 H	40000.0	40000.0	-	-	12800.0
Manganese	977.0	236.0	483.0	363.0	-	_		} _	l - i	295.0
Nickel	30.5	16.7	34.8	48.5	-	-	–	-	_	7.9
Potassium	5640.0	3900.0	20800.0	51200.0	_	_	-	1 -		883.0
Selenium	2.6	-	-	-	-	1 -	_	_	· -	-
Sodium	6690.0	43900.0	35400.0	115000.0	-	45000.0	45000.0	-	_	30.4
Thallium	-	-	-		-	-	-	!	_	0.7
Vanadium	2.2	-	2.9	-	-	i –	l –	-	-	15.4
Zinc	37.8	22.3	83.0	63.6	3.9 H	75.0	397.0	_	l· -	75.5
Temperature (Celcius)		-] -	-	-	14.4	-	-	-	-
Millivolt		-	1 -	-	-	19.0	 - .	_	_	-
PH	_		_	_	-	6.7	_	-	_	_

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Appendix A
4-MILE RADIUS

SDMS US EPA Region V

Imagery Insert Form

Some images in this document may be illegible or unavailable in SDMS. Please see reason(s) indicated below:

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Appendix B
Target Compound List

TARGET COMPOUND LIST

Volatile Target Compounds

Chloromethane	1,2-Dichloropropane
Bromomethane	cis-1,3-Dichloropropene
Vinyl Chlorde	Trichloroethene
Chloroethane	Dibromochloromethane
Methylene Chloride	1,1,2-Trichloroethane
Acetone	Benzene
Carbon Disulfide	trans-1,3-Dichloropropene
1,1-Dichloroethene	Bromoform
1,1-Dichloroethane	4-Methyl-2-pentanone
1,2-Dichloroehtene (total)	2-Hexanone
Chloroform	Tetrachloroethene
1,2-Dichloroethane	1,1,2,2-Tetrachloroethane
2-Butanone	Toluene
1,1,1-Trichloroethane	Chlorobenzene
Carbon Tetrachloride	Ethylbenzene
Vinyl Acetate	Styrene
Bromodichloromethane	Xylenes (total)

Base/Neutral Target Compounds

Hexachloroethane	2,4-Dinitrotoluene
bis(2-Chloroethyl) Ether	Diethylphthalate
Benzyl Alcohol	N-Nitrosodiphenylamine
bis (2-Chloroisopropyl) Ether	Hexachlorobenzene
N-Nitroso-Di-n-Propylamine	Phenanthrene
Nitrobenzene	4-Bromophenyl-phenylether

Hexachlorobutadiene	Anthracene
2-Methylnaphthalene	Di-n-Butylphthalate
1,2,4-Trichlorobenzene	Fluoranthene
Isophorone	Pyrene
Naphthalene	Butylbenzylphthalate
4-Chloroaniline	bis(2-Ethylhexyl)Phthalate
bis(2-chloroethoxy)Methane	Chrysene
Hexachlorocyclopentadiene	Benzo(a)Anthracene
2-Chloronaphthalene	3-3'-Dichlorobenzidene
2-Nitroaniline	Di-n-Octyl Phthalate
Acenaphthylene	Benzo(b)Fluoranthene
3-Nitroaniline	Benzo(k)Fluoranthene
Acenaphthene	Benzo(a)Pyrene
Dibenzofuran	Ideno(1,2,3-cd)Pyrene
Dimethyl Phthalate	Dibenz(a,h)Anthracene
2,6-Dinitrotoluene	Benzo(g,h,i)Perylene
Fluorene	1,2-Dichlorobenzene
4-Nitroaniline	1,3-Dichlorobenzene
4-Chlorophenyl-phenylether	1,4-Dichlorobenzene

Acid Target Compounds

2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
4-Chloro-3-methylphenol
2,4-Dinitrophenol
2-Methyl-4,6-dinitrophenol
Pentachlorophenol
4-Nitrophenol

Pesticide/PCB Target Compounds

<u></u>	
alpha-BHC	Endrin Ketone
beta-BHC	Endosulfan Sulfate
delta-BHC	Methoxychlor
gamma-BHC (Lindane)	alpha-Chlordane
Heptachlor	gamma-Chlordane
Aldrin	Toxaphene
Heptachlor epoxide	Aroclor-1016
Endosulfan I	Aroclor-1221
4,4'-DDE	Aroclor-1232
Dieldrin	Aroclor-1242
Endrin	Aroclor-1248
4,4'-DDD	Aroclor-1254
Endosulfan II	Aroclor-1260
4,4'-DDT	

Inorganic Target Compounds

Aluminum	Manganese
Antimony	Mercury
Arsenic	Nickel
Barium	Potassium
Beryllium	Selenium
Cadmium	Silver
Calcium	Sodium
Chromium	Thallium :
Cobolt	Vanadium
Copper	Zinc

Iron	Cyanide
Lead	Sulfide
Magnesium	_

Appendix C

Aerial Photograph Location Maps

of Browning Ferris Industries



